3S RECIPE - Smart Shrinkage Solutions

Fostering Resilient Cities in Inner Peripheries of Europe

STOKE-ON-TRENT (UK) POLICY BRIEF #2 • COMPACT CONNECTED CITY

EXECUTIVE SUMMARY

This policy brief showcases a successful solution to a poor connectivity problem through the construction of an **effective transport interchange** network in Stoke-on-Trent – a medium-size polycentric industrial city in central England[1], undergoing fundamental economic restructuring and experiencing an increase in transportation demand. This decade-long project of upgrading two non-primary (non-motorway) roads around the Potteries was completed in 2006. Building on local stakeholders' knowledge and experience in delivering this solution, this brief shows how a strategic transport interchange can make a shrinking city successful by **attractively connecting the areas of work, living, shopping, and leisure**. The key lesson learnt is that both external and internal connectivity is critical for making a successful city, and that providing more options for sustainable and active local travel supported by a range of facilities (cycle racks, park and rides, dedicated bus lanes) can enhance the city connectivity.

INTRODUCTION

The **A50** (Leicester to Warrington) and **A500** (Clayton to Nantwich) roads are strategic highways that run through England and connect Stoke-on-Trent to the **M1 motorway** in the east and the **M6 motorway** in the west (Junctions 15 & 16, see the map below), accommodating some recent major employment growth poles. In recent years, these transport corridors have undergone a major improvement as part of the **national government investment** in the country's **strategic road networks**. While improving the A50/A500 roads has been critical for Stoke-on-Trent's strategic connectivity and the city's rapidly developing logistics and distribution businesses, this work has generated a lot of traffic movements through the city, cutting several communities in half, and posing environmental risks, including air pollution. Furthermore, the past improvements have made it easier for people and businesses to drive through, bypassing Stoke, rather than retain their function and operations within the city. Therefore, the local authority and other stakeholders have been working on improving internal connectivity and services within the Potteries metropolitan area to maximise the potential of the national investment in the strategic A50/A500 links and reduce the detrimental impact on local residents. During the period 1997-2006, the local authorities, regional and national transport agencies have implemented several projects on modernising the road infrastructure around the A50/A500 interchange, culminating in a series of flyovers, roundabouts, and underpasses[2].

[1] Stoke-on-Trent (pop. 255,833) is a local authority created in 1910 through federation of six historical towns – *The Potteries* – including Tunstall, Burslem, Hanley, Stoke, Fenton, and Longton, with an area of 36 square miles [93 km^2]. The municipality was granted city status in 1925 by King George V during a personal visit to emphasise its importance as the centre of the china and pottery industry.

[2] For a brief history of the A500 - Potteries D Road improvements, see here: http://thepotteries.org/photo_wk/093.htm

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TOWARDS A STRATEGIC TRANSPORT INTERCHANGE: ENHANCING THE REGIONAL ROAD NETWORK

The **A50/A500 transport corridor** upgrade has facilitated the movement of traffic both within and outwith the area and improved local accessibility in a way that is responsive to local travel needs and different functions of the city. More emphasis has been given to public transport modes and facilities (i.e. better bus services and bus priority measures, restoration of old tram lines, refurbishment of the central coach and bus station), introducing park-and-ride schemes in key strategic locations, improving travel information, and developing cycling routes and facilities. To identify the practical mechanisms driving the A50/A500 road infrastructure upgrade, we have used a distinctive in-house *Urban Futures Method* designed to facilitate stakeholders' collective reflection on and learning about this solution, its benefits, and necessary conditions for effective urban regeneration and smart shrinkage practices (Lombardi et al, 2012). During a special workshop on 12 March 2019 hosted by *B Arts* (Beavers Arts Ltd), the local actors involved in or influenced by these transport infrastructure projects highlighted the **six most beneficial connectivity outcomes** for the city and identified specific enabling conditions to achieve them, as follows:

Outcomes	What are the necessary conditions that make it happen?
1. Easing the traffic flow through the city	• Free bus passes - public transport • Improved pedestrian network • Park & Ride facilities • Smart traffic management • Machine learning-assisted traffic lights (aspirational) • Restoration of the city's tram system (aspirational) • Car sharing opportunities • Driverless vehicles (aspirational) • Low-carbon vehicles
2. North-South links via M6 and to East Midlands via A50	• Wider connections to other road & rail networks • Free bus passes – public transport • Improved pedestrian network • Park & Ride facilities • Smart traffic management • Machine learning-assisted traffic lights (aspirational) • Tram system (aspirational) • Car sharing opportunities (aspirational) • Driverless vehicles (aspirational) • Low-carbon vehicles

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3. Utilising the 'waste land'	• Place-based industrial strategy focusing on economic revitalisation of 'waste' land to develop higher skilled jobs, aspirations and education – smart workers (life-long learning) • Smart traffic management • Machine learning-assisted traffic lights (aspirational) • Tram system (aspirational)
4. Facilitating business park 'Enterprise Zones'	• Place-based industrial strategy • Smart traffic management • Machine learning-assisted traffic lights (aspirational)
5. Attracting distribution jobs & logistics firms	• Place-based industrial strategy • Free bus passes – public transport • Tram system (aspirational) • Smart traffic management • Machine learning-assisted traffic lights (aspirational) • Car sharing
6. Enhancing business road connections	• Place-based industrial strategy • Smart traffic management • Machine learning-assisted traffic lights (aspirational)

RECOMMENDATIONS: LEARNING FROM THE A50/A500 TRANSPORT INTERCHANGE

➢ **Improvements to highway corridors should consider measures for a better traffic circulation, business opportunities and the quality of life within the city**

The development of road corridors have generated a lot of traffic movement through the city, cutting through the city landscape and across local communities, creating environmental problems. Local actors have realised that the A50/A500 intervention has largely focused on developing Stoke-on-Trent as a strategic transport intersection, making it easier for people to drive through the city rather than to stay on, to live, work, and have fun. To reduce traffic congestion and improve accessibility to jobs and services within the city, initiatives on highway corridors should ensure the provision, upgrading and expansion of local-to-regional transport networks. Active and public transport modes should also be prioritised, helping low-oncome communities as well as increase the reliance on walking, cycling, and public transport.

➢ **A place-based industrial strategy should be considered to facilitate a more productive use of 'waste' land along highways and roads**

The A50/A500 roads were put in on former 'waste' land, which was initially attractive for the development of logistics and distribution businesses. This pattern of development has generated heavy traffic volumes in the city. There is a need for a place-based industrial strategy to support a more productive revitalisation of 'waste' land alongside transport corridors, including the development of higher skilled jobs and aspirations through further education and investment into new areas of innovation and economic growth.

➢ **Local transport corridors should enhance links to regional and national transport connectivity**

The A50/A500 corridors provide Stoke-on-Trent with an opportunity to enhance its connection to strategic M6 and M1 motorways. However, the A50/A500 routes have become very congested around the section that ploughs through Stoke-on-Trent, significantly affecting the city's capabilities to manage traffic volumes, whilst also fuelling air pollution. Therefore, local road connections to strategic transport networks should be enhanced through building wider connectivity to other highway and railways networks. This strategy should be complemented by other measures to improve the effectiveness of the local transport interchange, including free or subsidised bus passes, improved pedestrian networks, park-and-ride facilities, and a range of active and public modes of transportation.

WOULD A NEW TRANSPORT CORRIDOR DELIVER THE SAME BENEFITS WHATEVER THE FUTURE BRINGS?

The successful delivery of a major transport infrastructure upgrade could well be affected by wider and dynamic political economy settings that are difficult to predict and comprehend locally. A smart shrinkage solution may be

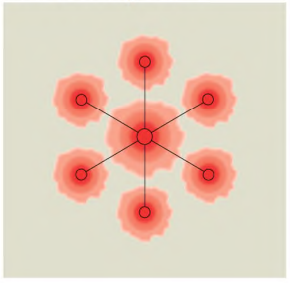
View of the A500 Queensway from Glebe Street Bridge near Stoke-on-Trent Civic Centre

strategic (e.g., new transport infrastructure) or detailed (e.g., expanding parking space at a park & ride railway station). Whatever the short-term effect of a given solution, policy-makers must adopt a longer-term perspective to ensure its **continued performance** throughout its intended lifespan, despite changing conditions. The question to ask is, thus: Will today's smart shrinkage solutions deliver their intended benefits over a 40-year regeneration cycle, typically used for planning investment and development proposals? During this project, we have tested the likely future performance of each urban development and regeneration-related 'smart shrinkage solution-benefit pair' – that is, actions taken today in the name of sustainable urban development – in a series of possible future scenarios for the year 2060. If a proposed solution delivers a positive legacy, regardless of the future against which it is tested, then it can be adopted with confidence. Four **plausible but distinct** future scenarios were included into our analysis (Lombardi *et. al.*, 2012: Table 2). A summary of these four global **urban future scenarios** is as follows:

New Sustainability Paradigm (NSP)

Key driver: Equity and sustainability

Settlement pattern



Description

An ethos of 'one planet living' facilitates a shared vision for more sustainable living and a much improved quality of life. New socio-economic arrangements result in changes to the character of urban industrial civilisation. Local is valued but global links also play a role. A sustainable and more equitable future is emerging from new values, a revised model of development and the active engagement of civil society.

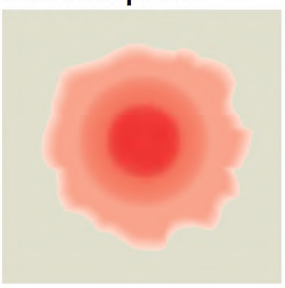
Philosophy

The worldview of the *New Sustainability Paradigm* has few historical precedents, although John Stuart Mill, the nineteenth century political economist, was prescient in theorising a post-industrial and post-scarcity social arrangement based on human development rather than material acquisition (Mill, 1848).

Policy Reform (PR)

Key driver: Economic growth with greater equity

Settlement pattern



Description

Policy Reform depends on comprehensive and coordinated government action for poverty reduction and environmental sustainability, negating trends toward high inequity. The values of consumerism and individualism persist, creating a tension with policies that prioritise sustainability.

Philosophy

In *Policy Reform*, the belief is that markets require strong policy guidance to address inherent tendencies toward economic crisis, social conflict and environmental degradation. John Maynard Keynes, influenced by the Great Depression, is an important predecessor of those who hold that it is necessary to manage capitalism in order to temper its crises (Keynes, 1936).

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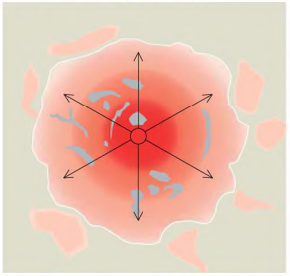
Market Forces (MF)

Key driver: Competitive, open global markets

Settlement pattern



Description

Market Forces relies on the self-correcting logic of competitive markets. Current demographic, economic, environmental, and technological trends unfold without major surprise. Competitive, open and integrated markets drive world development. Social and environmental concerns are secondary.

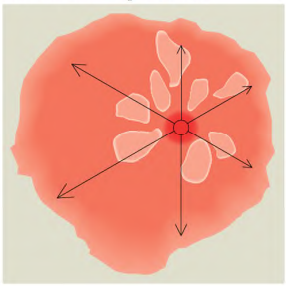
Philosophy

The *Market Forces* bias is one of market optimism, the faith that the hidden hand of well-functioning markets is the key to resolving social, economic and environmental problems. An important philosophic antecedent is Adam Smith (1776), while contemporary representatives include many neo-classical economists and free market enthusiasts.

Fortress World (FW)

Key driver: Protection and control of resources

Settlement pattern



Description

Powerful individuals, groups and organisations develop an authoritarian response to the threats of resource scarcity and social breakdown by forming alliances to protect their own interests. Security and defensibility of resources are paramount for these privileged rich elites. An impoverished majority exists outside the fortress. Policy and regulation exist but enforcement may be limited. Armed forces act to impose order, protect the environment and prevent a societal collapse.

Philosophy

The *Fortress World* mindset was foreshadowed by the philosophy of Thomas Hobbes (1651), who held a pessimistic view of the nature of man and saw the need for powerful leadership. While it is rare to find modern Hobbesians, many people believe, in their resignation and anguish, that some kind of a *Fortress World* is the logical outcome of the unattended social polarisation and environmental degradation they observe.

The Urban Future Method does not favour any particular scenario. Indeed, for a solution to be determined to be robust and resilient to future change, the necessary conditions to support intended benefits being achieved over time must exist in all scenarios. Drawing on expertise, experience, and **knowledge of the local context**, we have graded the likely performance of the A50/500 upgrade's necessary conditions in the future as follows:

Urban Futures Method applied to the construction of a transport interchange to promote connectivity				
Necessary Conditions	**New Sustainability Paradigm**	**Policy Reform**	**Marker Forces**	**Fortress World**
Public transport – fast, reliable, comfortable	Public transport is well supported, conforming to sustainability values	Public transport policy options are available, being instrumental in fulfilling national climate change commitments	Public infrastructure is privatised or undeveloped. Privatisation reversal would be required to bring mass passenger transport back into public hands	Public transport exists as the option for the poor, if it ensures security and resources for the elites
Place-based industrial strategy – to revitalise 'waste' land	An industrial strategy supports localities to ensure sustainability, but significant capacity constraints exist for locally driven policy delivery. Lack of waste land	Place-based industrial strategy is promoted as an urban regeneration and job-creation mechanism	*Laissez-faire* rules out state intervention. A weak central and/or local state implies a weak industrial strategy. Focus on well-performing private industries and successful cities	A local industrial strategy exists only to support rich 'winners' and the places around them
Wider connectivity to other road & rail networks	Good connectivity contributes to urban sustainability	Enhancing strategic-local networks depends on local actors' political voice and electoral influence	Wider connections exist but benefit economically successful areas	Connections exist but support business and everyday needs of the elites
Car sharing	Car sharing exists as an efficient way of utilising the remaining car pool	Car sharing is promoted as a way of fulfilling national climate change commitments	Private motorcar is the primary means of transport. Individualistic consumer behaviour hinders sharing	Car sharing exists amongst poor communities and low-income groups
Pedestrian network improvement	Walking & cycling are well supported as the primary means of transport	Walking is promoted to fulfil national climate change commitments	Pedestrian access is negligible and walkability is actively discouraged	Walking is the primary means of transport amongst poor communities, but no funding exists for

Urban Futures Method applied to the construction of a transport interchange to promote connectivity				
Necessary Conditions	**New Sustainability Paradigm**	**Policy Reform**	**Marker Forces**	**Fortress World**
				improving pedestrian routes
Low-carbon vehicles	Low-carbon mobility is well supported, conforming to sustainability values	Low-carbon transport is supported to fulfil national climate change commitments	Low-carbon vehicles exist, but popularity depends on market-driven consumer behaviour	Low-carbon vehicles are beyond the reach of the impoverished public
Park-and-ride facilities[3]	Jobs and shops are local and long-distance commuting is unnecessary / not viable	Park & ride is well supported by regional transport authorities	Park & ride facilities exist, but usage depends on market-driven consumer demand	Manual workers are bussed directly into rich enclaves from poor townships daily
Smart traffic management[4]	No need as localised production, consumption and distribution patterns generate only light traffic	A transport engineering solution to regulate the flow of traffic is supported to foster growth and efficiency	Smart traffic management exists as pilot studies. Uptake and roll-out is disappointing due to local authorities' financial constraints	Sophisticated ICT-driven traffic management systems are unaffordable for the overwhelming majority of local communities

Key: condition highly unlikely to continue in the future condition is at risk in the future condition highly likely to continue in the future

POLICY IMPLICATIONS

➢ **Both internal and external connectivity is critical for reviving a shrinking city's economy**

A shrinking city's actors should work hard on enhancing the city's strategic connectivity, though, frequently, such an approach leads to less attention being paid to the city's often-poor local transport links. In most countries, less funding is being allocated by central governments for local transport expenditure and service support in contrast with strategic national transport infrastructure (GO Science, 2019). Yet poor internal connectivity is increasingly seen to create barriers to better integration of the city's strategic employment and housing sites, improving access for residents to everyday life services, and attracting more people from outside to work and live in the (formerly) shrinking city. Moreover, both types of connectivity are developed through quite different means, making it difficult to achieve integrated and sustainable outcomes.

Policy implication 1: **Transport projects should enhance internal connectivity with strategic routes**. Accessibility within Stoke-on-Trent is largely enabled by the A50/A500 highways with further local access away from these roads remaining poor. To remove this barrier to regeneration, actions should keeping things moving within the urban area by combining technical solutions with the tacit local knowledge of the city's specific socio-economic and everyday life needs. Local decision-makers should consider the variety of road and street functions, improving traffic management, supporting active means of travel, easing everyday access to services and amenities, local jobs, and to external transport links. A comprehensive study of everyday connectivity experience by firms and residents could augment the evidence base.

➢ **Improving connectivity is not just about transport modes and networks**

For people and businesses, good connectivity is not just about different modes of transportation, but wider links that support them to take part in everyday commercial and life activities, including employment, consumption, healthcare, and leisure. Transport initiatives are often not well aligned with activities in other sectors, despite the broader role of transport, with its potential benefits in creating business clusters, promoting healthy lifestyle through cycling and walking, and supporting the regeneration of the city centre. However, existing transport authorities and decision-making processes in many countries are not structured necessarily to utilise the full potential of those wider links (GO Science, 2019: 78).

Policy implication 2: **Local transport strategies should be brought together with other initiatives within the urban area.** It is crucial to find new ways of working and finding synergies with other economic development, land-use, housing, and regeneration policies and activities within a shrinking city's functional urban area. Unified governance structures and leadership teams, including, e.g., a mayoral office, a local enterprise partnership, a metropolitan transit authority, a combined local authority, or a voluntary public-private collaborative planning agency, could help sustain a concerted effort.

[3] 'Park-and-ride': a place on the outskirts of a city where one can park one's car cheaply and take a bus or other form of public transport into the city centre.

[4] A system where centrally controlled traffic signals and sensors regulate the flow of traffic through the city in response to demand.

➢ **Transport corridors can physically reinforce high deprivation and social exclusion**

Shrinking cities often face high deprivation and require substantial investments in public infrastructure to address this challenge. People in many deprived communities rely heavily on public transport to get around and out of the city for employment and services. However, public transport options are very often limited to an occasional bus service. Poor public transport provision creates a barrier to essential travel and commuting, thus, reinforcing existing socio-spatial disadvantages. New highways and transport corridors can physically cut across local communities, too. Local authorities and other transport stakeholders often improve commercial transport links at the expense of public transport connections, and walking and cycling routes.

Policy implication 3: **Transport decisions should ensure that low-income communities and people with high social needs could reach job opportunities and key services.** Transport decisions in a shrinking city should consider how best to accommodate high social and public service needs of its many citizens. Given that many people depend on public transport, urban policy should focus on developing different modes of public and active non-motorised transportation. These may consist of building new and/or re-opening old tram and over-ground rail lines, and re-inventing river and water canal travel. Local action should build on good evidence and effective assessment of needs and requirements. It is vital to improve the public perception of public transport and eradicate the stigmatisation of its end-users.

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View of the City Centre Bus Station from the A50 Road around Hanley
Costing £15m, the new bus station by award winning architects Grimshaw, opened in 2013

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